

HIGH RELIABILITY MAGNECRAFT STOCK RELAYS

DIRECT ALL INQUIRIES
AND ORDERS TO

CATALOG 266

INDUSTRIAL STOCKING DISTRIBUTOR

For Engineering Assistance consult your MAGNECRAFT Sales Representative

MAGNECRAFT RELAYS

The relays you can rely on

327 different Relay Models

Immediate Delivery from
STOCKING DISTRIBUTORS

MAGNECRAFT ELECTRIC CO., 5575 N. Lynch, Chicago, Ill. 60630 Ph (312) 282-5500

All prices and specifications effective August 1, 1965 and subject to change without notice.

All prices are NET for 1 to 9 Relays except Mercury-Wetted Contact and Dry Reed Relay prices are NET for 1 to 24.

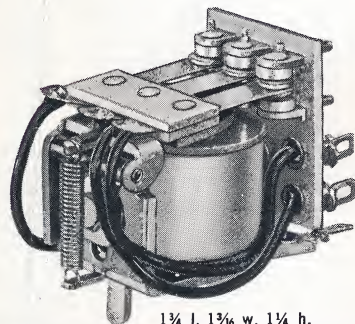
All contact ratings based on 115 VAC or 32 VDC, non-inductive load.

Voltage operated relays pull in at 85% of nominal voltage.

ORDER BY CATALOG NUMBER. Labels on MAGNECRAFT STOCK RELAY CARTONS carry Catalog Number, contact combination and rating; coil voltage or current.

All enclosed relays are identified by catalog number and wiring diagram.

NOTE. Order MAGNECRAFT STOCK RELAYS from STOCKING DISTRIBUTORS. Their stocks are supplemented by complete stocks maintained at the MAGNECRAFT plant in Chicago.



Class 88
Small AC-DC
General Purpose
Relay.

Open Type Relay. Has 10 ampere silver alloy contacts. Tinned solder terminals, spaced for easy wiring. One #6-32 tapped mounting hole with locating boss. Weight, 2 ounces.

1 1/4" l, 1 1/8" w, 1 1/4" h.

The General Purpose Relay with Telephone Type Reliability

The MAGNECRAFT 88 Relay is an abrupt departure in clapper type relay design. Dimensionally interchangeable with relays made by others the 88 has been developed to provide Telephone Type Relay reliability at general purpose relay prices.

Unique in relays of this type MAGNECRAFT 88 Relays have rugged, precision-built hinge-pin armature bearings with over-size bearing surfaces—the same construction used in the finest telephone type relays for lowest friction and maximum contact effectiveness with stabilized adjustment over long life.

Glass insulation provides great di-electric strength unaffected by humidity and temperature changes.

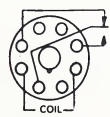
Molded Nylon bobbins with ruggedized coil terminal inserts eliminate possibility of shorts.

Built-in contact wipe with riveted contacts further advance reliability through long life.

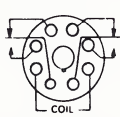
The many refinements, plus MAGNECRAFT Quality Control and Inspection Standards give you hidden values beyond price—unseen values that keep making friends through years of dependable service.

When you inspect and compare you will soon see that many MAGNECRAFT 88 extra values are not hidden.

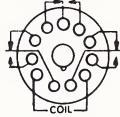
Wiring diagrams for Class 88 Plug-in Mounted Relays



WD-1 SPDT, 8-pin



WD-2 DPDT, 8-pin



WD-3 3PDT, 11-pin

h* is overall dimension above socket WD is abbreviation for Wiring Diagram
†Voltage operated relays pull in at 85% of nominal voltage.



Class 88CP
Small AC-DC
Plug-in Relay
in Crackproof
plastic cover

See wiring diagrams
at lower left
1 3/8" x 1 1/8" x 2 1/8" h*

Enc. 40-279 CRACKPROOF, clear as glass, tough as steel dust cover of polycarbonate resin housing Class 88 relay with 8- or 11-pin standard octal plug. Silver alloy contacts, 10 amp. rating. Weight, 3 ounces.

contact arrange- ment	COIL			10 ampere silver alloy contacts			
	volt. or current	res. ohms	nominal power	OPEN RELAY Stock Part No.	NET	WITH ENCLOSURE 40-279 Stock Part No.	Plug NET
alternating current voltage actuated							
SPDT WD-1	6VAC	—	3 VA	W88AX1	3.35	W88ACPX1	5.50
	12VAC			W88AX2	3.35	W88ACPX2	5.50
	24VAC			W88AX3	3.40	W88ACPX3	5.55
	115VAC			W88AX4	3.55	W88ACPX4	5.70
	230VAC			W88AX34	4.00	W88ACPX76	6.30
DPDT WD-2	6VAC	—	3 VA	W88AX5	3.95	W88ACPX5	6.24
	12VAC			W88AX6	3.95	W88ACPX6	6.24
	24VAC			W88AX7	4.00	W88ACPX7	6.29
	115VAC			W88AX8	4.15	W88ACPX8	6.44
	230VAC			W88AX32	4.60	W88ACPX32	6.99
3PDT WD-3	6VAC	—	3 VA	W88AX9	4.35	W88ACPX9	7.66
	12VAC			W88AX10	4.35	W88ACPX10	7.66
	24VAC			W88AX11	4.40	W88ACPX11	7.81
	115VAC			W88AX12	4.55	W88ACPX12	7.96
	230VAC			W88AX36	4.55	W88ACPX39	8.51
direct current voltage actuated							
SPDT WD-1	6VDC	25	1.5W	W88X2	3.20	W88CPX1	5.35
	12VDC	100		W88X3	3.20	W88CPX2	5.35
	24VDC	400		W88X4	3.25	W88CPX3	5.40
	110VDC	8000		W88X5	3.80	W88CPX4	5.95
DPDT WD-2	6VDC	25	1.5W	W88X6	3.55	W88CPX5	5.84
	12VDC	100		W88X7	3.55	W88CPX6	5.84
	24VDC	400		W88X8	3.60	W88CPX7	5.89
	110VDC	8000		W88X9	4.15	W88CPX8	6.44
3PDT WD-3	6VDC	25	1.5W	W88X10	3.95	W88CPX9	7.21
	12VDC	100		W88X11	3.95	W88CPX10	7.21
	24VDC	400		W88X12	4.00	W88CPX11	7.26
	110VDC	8000		W88X13	4.55	W88CPX12	7.81
DC current actuated for plate circuit operation							
SPDT WD-1	7.2 MA	2500	125MW	W88X14	3.75	W88CPX13	5.90
	5.0 MA	5000		W88X15	3.85	W88CPX14	6.00
	3.6 MA	10000		W88X16	4.25	W88CPX15	6.40
DPDT WD-2	10 MA	2500	250MW	W88X17	4.01	W88CPX16	6.30
	7.2 MA	5000		W88X18	4.11	W88CPX17	6.40
	5 MA	10000		W88X19	4.51	W88CPX18	6.80
3PDT WD-3	12.3 MA	2500	375MW	W88X20	4.44	W88CPX19	7.70
	8.7 MA	5000		W88X21	4.54	W88CPX20	7.80
	6.1 MA	10000		W88X22	4.94	W88CPX21	8.20

Class 88 HP—Hermetically Sealed Enclosure Plug-in Mounted—10 Amps.—AC and DC

40-180 enclosure, hermetically sealed, housing Class 88 high reliability relay (see above) with standard 8-pin octal plug. Silver alloy contacts, 10 ampere rating. Weight 5 ounces.



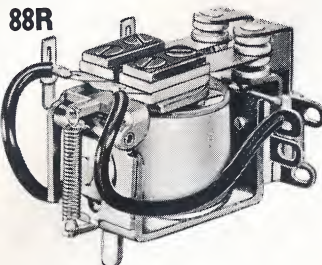
1-11/16 diameter x 2 1/32 h.

contacts 10 amps.	volt- age	res. ohms	nom. power	Stock Part No.	Price 1 to 9
alternating current voltage actuated					
DPDT WD-2	6VAC	—	3VA	W88HPX-21	8.59
	12VAC	—		W88HPX-22	8.59
	24VAC	—		W88HPX-23	8.64
	115VAC	—		W88HPX-24	8.79
direct current voltage actuated					
DPDT WD-2	6VDC	25	1.5W	W88HPX-32	8.19
	12VDC	100		W88HPX-33	8.19
	24VDC	400		W88HPX-34	8.24
	110VDC	8000		W88HPX-35	9.29

MAGNECRAFT RELAYS

Power, Latching and Coaxial

Small—Power—AC-DC—15 amps.



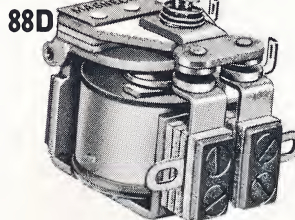
1 1/8 l, 1 1/2 w, 1 1/2 h

Class **88R** extra quality, high reliability clapper type relay with 15 ampere heavy duty silver alloy contacts for industrial control applications. Has the exclusive quality features of Class 88 relays described on page one. Tinned solder terminals. One #6-32 tapped mounting hole and locating boss. Weight 3 ounces.

contacts	15 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
DPDT	6VAC	—	—	3VA	W88ARX1	5.97
	12VAC	—	—	—	W88ARX2	5.97
	24VAC	—	—	—	W88ARX3	6.02
	115VAC	—	—	—	W88ARX4	6.17
DPDT	6VDC	25	—	—	W88RX1	5.90
	12VDC	100	—	1.5W	W88RX2	5.90
	24VDC	400	—	—	W88RX3	5.95
	110VDC	8000	—	—	W88RX4	6.40

NOTE—Voltage actuated relays pull in at 85% of nominal voltage.

Power - AC and DC - 50 amps.

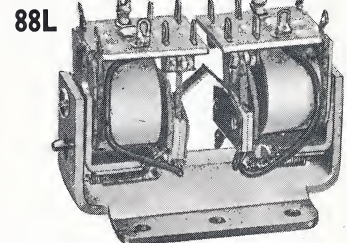


1-13/16 x 1-1/4 (less soldering tabs) x 1-7/16 high

The popular high reliability Class 88 Relay (see page 1) specially designed with 50-ampere SPST, Double Break, Normally Open contacts. Developed especially for switching heavy current in minimum space reliably and economically. Unique contact structure provides positive wiping action. One 6-32 tapped mounting hole and locating boss. Weight, 3 ounces.

contacts	50 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
50 amperes SPST	24VAC	—	—	3VA	W88ADX-1	5.15
	115VAC	—	—	—	W88ADX-2	5.25
	230VAC	—	—	—	W88ADX-3	5.70
	6VDC	25	—	—	W88DX-1	4.65
Double BREAK, Normally Open	12VDC	100	1.5W	—	W88DX-2	4.65
	24VDC	400	—	—	W88DX-3	4.70
	110VDC	8000	—	—	W88DX-4	5.94

Latch-In - AC and DC - Small



2-11/16 max. x 1 1/4 x 1-15/16 high max.

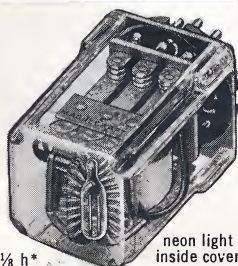
Two class 88 relays (see page 1) with interlocking latch-in levers mounted on a common base. Each armature latches when pulled in. Energizing one armature releases (resets) the other. Each relay is complete with independent operating coil. Contacts are silver alloy, 10 ampere rating. Relay coils are designed for continuous duty operation. Weight 6 1/2 ounces.

contacts	10 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
4PDT	6VAC	—	—	6VA	W88ALX-2	10.60
	24VAC	—	—	prox.	W88ALX-3	10.60
	115VAC	—	—	—	W88ALX-4	10.60
	6VAC	—	—	6VA	W88ALX-5	12.80
6PDT	24VAC	—	—	prox.	W88ALX-6	12.80
	115VAC	—	—	—	W88ALX-7	12.80
	6VDC	12	—	—	W88LX-1	9.65
	12VDC	50	—	—	W88LX-2	9.65
4PDT	24VDC	200	3W	—	W88LX-3	9.65
	110VDC	4000	—	—	W88LX-4	10.85
	6VDC	12	—	—	W88LX-5	11.75
	12VDC	50	—	—	W88LX-6	11.75
6PDT	24VDC	200	3W	—	W88LX-7	11.75
	110VDC	4000	—	—	W88LX-8	12.95

Small AC 10 amp. plug-in relay with neon "ON" light

88ANCP

CRACKPROOF
clear as glass
tough as steel



1 1/8 x 1 3/8 x 2 1/8 h*

neon light inside cover

Enc. 40-279 **CRACKPROOF**, clear as glass, tough as steel dust cover of polycarbonate resin with 8- or 11-pin standard octal plug housing Class 88 high reliability relay (see page 1) with built-in neon circuit indicator light. Indicator light comes on when coil is energized.

- Eliminates need for expensive pilot lamp assemblies
- Saves panel space
- Circuit condition can be seen at a glance

Silver alloy contacts, 10 ampere rating. Weight, 3 ounces.

contacts	wiring diagrams	volt. AC	nominal power	Stock Part No.	NET
SPDT	WD-1*	115	—	W88ANCPX-1	6.64
DPDT	WD-2*	115	3VA	W88ANCPX-2	7.29
3PDT	WD-3*	115	—	W88ANCPX-3	8.81

*See page 1.

Class 128 Coaxial Relays for RF Switching

Small compact relay combining a heavy duty coaxial cavity and the MAGNECRAFT 88 Relay structure described on page one.

The precision-built, hinge-pin type armature bearings of the Class 88 assure consistent pull-in power with maximum reliability over long life.

The coaxial contact structure is enclosed in a heavy duty precision machined brass cavity with removable plug for convenient inspection of contacts.

SPDT RF switching contacts are silver cadmium oxide, gold flashed, conservatively rated 100 watts of RF power; impedance matched to 50 ohm cable using standard type UHF connectors. VSWR 1.25:1 maximum from 0 to 500 megacycles.

Operate time, 25 ms maximum

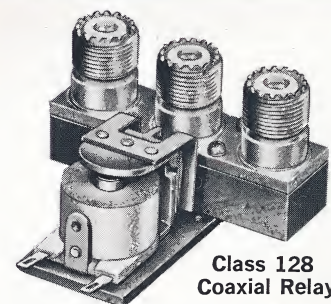
Release time, 25 ms maximum

Overall dimensions approx. 2 5/8 x 2 7/8 x 1 1/16

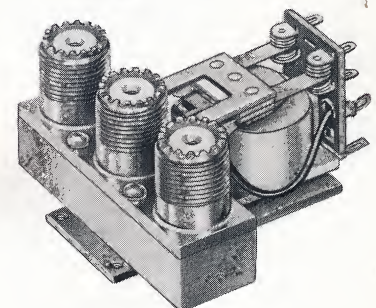
Coaxial Contacts	Volt. or Current	Res. Ohms	Stock Part No.	Price 1 to 9
Class 128 Relay				
SPDT	115 VAC	—	W128AX-7	18.47
SPDT	12 VDC	100	W128X-9	18.13
SPDT	24 VDC	400	W128X-10	18.20

Class 128 Relay with DPDT Auxiliary Contacts

Coaxial Contacts	Volt. or Current	Res. Ohms	Stock Part No.	Price 1 to 9
SPDT	115 VAC	—	W128AX-11	20.85
SPDT	12 VDC	100	W128X-14	20.02
SPDT	24 VDC	400	W128X-15	20.08



Class 128 Coaxial Relay



Class 128 Coaxial Relay with DPDT Auxiliary Contacts.

For Low Capacitance RF Switching Relay see Class 33F, page 4.

Send for complete 50-page Engineering Catalog 165

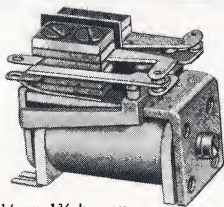
MAGNECRAFT ELECTRIC CO., 5575 N. Lynch, Chicago, Ill. 60630 Ph (312) 282-5500

Telephone Type

MAGNECRAFT RELAYS

Sub-miniature—DC—3 amps.

33



1 1/2 l, 1 1/16 w, 1 3/4 h. max.

Class 33 midget sub-miniature; the smallest telephone type MAGNECRAFT Relay and one of the smallest telephone type relays on the market. Class 33 is also the fastest operating and inherently more shock resistant and vibration resistant. Long life, reliability and accuracy fit Class 33 relays for a wide range of small space requirements. They are extensively used for aircraft, computer and mobile applications where small size, light weight and resistance to shock and vibration are essential.

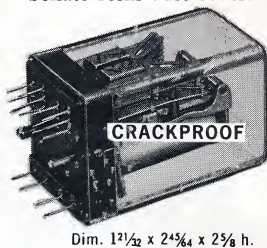
Palladium contacts; 3 ampere rating. Four 4-40 tapped mounting holes on 3/8 x 3/8 centers. Weight, 1 ounce.

contacts 3 amps	voltage DC	res. ohms	nominal power	Stock Part No.	NET
DPDT	6VDC	17	2.0W	W33X237	4.87
	12VDC	75		W33X238	4.87
	24VDC	280		W33X239	4.92
	110VDC	6500		W33X240	5.50
4DPT	6VDC	17	2.0W	W33X241	6.58
	12VDC	75		W33X242	6.58
	24VDC	280		W33X243	6.63
	110VDC	6500		W33X244	7.23

22TPM Direct Plug-in Assemblies with Twin Contacts Snap-on Cover

Effect big saving over factory-wired plug-ins.

- You wire the precision built socket
- Plug the 22TPM Relay into the socket
- Snap-on CRACK-PROOF clear as glass, tough as steel polycarbonate resin dust cover.



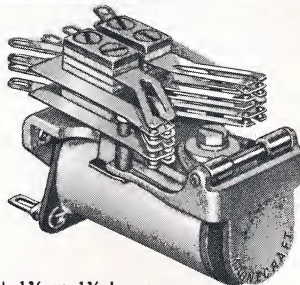
Dim. 1 3/4 x 2 1/4 x 2 3/4 h.

Class 22TPM direct Plug-in assemblies give you all the plug-in advantages with savings, compactness and convenience not obtainable with factory-wired plug-ins. These stock assemblies have twin palladium contacts rated 4 amps at 115 VAC or 32 VDC non-inductive load. Part Numbers and prices include complete assembly—socket with screws, 22TPM Relay and snap-on dust cover.

Contacts 4 amps	Voltage	Res. ohms	Nom. Power	Stock Part No.	Price 1 to 9
DPDT	115VAC	500	5VA	W22ATPMX-1	\$ 8.35
4DPT	115VAC			W22ATPMX-2	11.52
DPDT	24VDC	500	1.5W	W22TPMX-1	8.10
4DPT	24VDC			W22TPMX-2	10.87

Small—AC-DC—Twin Contacts

22T



2 1/4 l, 1 1/2 w, 1 3/4 h. max.

Class 22T—miniature long form relay with accuracy reliability and long life equal and sometimes superior to larger relays. A unique, pin type armature hinge of heavy duty design and precision construction assures stabilized adjustment through millions of operations. Twin Palladium contacts with long, flexible bifurcated contact springs assure the ultimate in switching reliability.

Twin Palladium contacts, 4 ampere rating. All mounting and wiring at heel end. Tinned solder terminals with easy-to-wire spacing. Two #6-32 tapped mounting holes on 3/4 centers. Weight, 5 ounces.

contacts 4 amps.	volt. or current	res. ohms	nominal power	Stock Part No.	NET
DPDT	115VAC	5VA	5VA	W22ATX12	5.94
	115VAC			W22ATX12	5.94

alternating current voltage actuated

contacts 4 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
4DPT	6VDC	20	2.0W	W22TX267	8.44
	12VDC	80	2.0W	W22TX268	8.44
	24VDC	375	1.5W	W22TX269	8.49
	110VDC	8000	1.5W	W22TX270	9.97

direct current voltage actuated

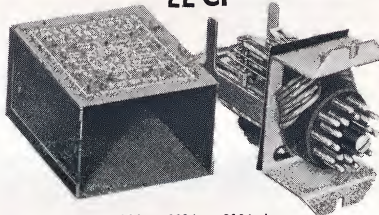
contacts 4 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
6DPT	6VDC	12	3.0W	W22TX271	11.87
	12VDC	50	3.0W	W22TX272	11.87
	24VDC	250	1.5W	W22TX273	11.92
	110VDC	5000	1.5W	W22TX274	12.91

DC current actuated for plate circuit operation

contacts 4 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
SPDT	4.5 MA	5000	100MW	W22TX276	5.91
	6.0 MA	2700	100MW	W22TX277	5.24
	3.2 MA	10000	200MW	W22TX278	6.18
DPDT	4.5 MA	10000	200MW	W22TX275	6.93

Small—DC—Plug-in with removable dust cover

22 CP



1 1/4 x 2 1/4 x 3 1/2 h.*

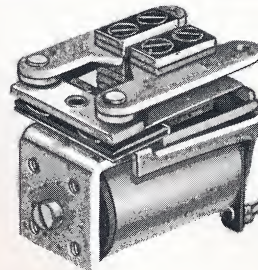
45-176 removable dust cover with Class 22 relay and 20-pin octal plug. Hold-down bracket permits mounting in any position. Internal bracket supports cover. One screw holds cover. Rubber gasket seals out dust. Silver alloy contacts, 5 ampere rating. Hold down bracket has two mounting holes for 6-32 screws on 2 1/8 centers. Weight, 8 ounces.

contacts 5 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
6DPT	6VDC	12	3.0W	W22CPX61	16.72
	12VDC	50		W22CPX62	16.72
	24VDC	225		W22CPX63	16.77
	110VDC	5000		W22CPX64	17.35

Miniature Power DC 50 amps SPST-NO-DB

11D

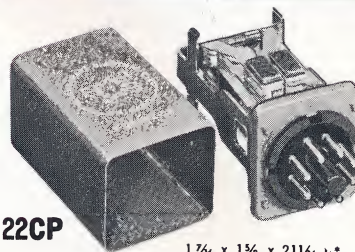
1 1/2 l, 1 1/2 w
1 1/2 h.



Class 11D miniature telephone type relay with heavy brass contact arms and large 50-ampere silver alloy, single pole, single throw, normally open, double break contacts. The Class 11 is a small size relay with big relay reliability, accuracy and long life. Solder terminals, spaced for easy wiring. Four 4-40 tapped mounting holes on 3/8 x 3/8 centers. Weight, 3 ounces.

contacts 50 amps.	voltage	res. ohms	nominal power	Stock Part No.	NET
SPST-NO	6VDC	25	1.5W	W11DX38	5.39
double break	12VDC	100		W11DX39	5.45
	24VDC	400		W11DX40	5.45
	110VDC	9000		W11DX41	6.08

Small—AC-DC—Plug-in with removable dust cover



1 1/4 x 1 1/4 x 2 1/4 h.*

40-284 enclosure with removable dust cover housing Class 22 relay with 8- or 11-pin standard octal plug. Internal bracket supports cover and protects relay. One screw holds cover in place. Silver alloy contacts, 5 ampere rating. Weight, 6 ounces.

contacts 5 amps.	voltage	res. ohms	nominal power	catalog number	NET
DPDT	115VAC	5VA	5VA	W22CPX60	10.23
	115VAC			W22CPX60	10.23
SPDT	6VDC	20	2.0W	W22CPX44	8.73
	12VDC	80	2.0W	W22CPX45	8.73
	24VDC	375	1.5W	W22CPX46	8.78
	110VDC	8000	1.5W	W22CPX47	10.02
DPDT	6VDC	20	2.0W	W22CPX48	9.85
	12VDC	80	2.0W	W22CPX49	9.85
	24VDC	375	1.5W	W22CPX50	9.90
	110VDC	8000	1.5W	W22CPX51	11.14
3DPT	6VDC	20	2.0W	W22CPX52	11.87
	12VDC	80	2.0W	W22CPX53	11.87
	24VDC	375	1.5W	W22CPX54	11.92
	110VDC	8000	1.5W	W22CPX55	13.16
DC current actuated for plate circuit operation					
SPDT	4.5 MA	5000	100MW	W22CPX57	9.36
	6.0 MA	2700	100MW	W22CPX58	9.02
	3.2 MA	10000	200MW	W22CPX59	10.02
DPDT	4.5 MA	10000	200MW	W22CPX56	11.14

MAGNECRAFT RELAYS

Hermetically Sealed

Hermetically Sealed Sub-miniature DC 5 amps. 33HS

$2\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$ h*

40-157 enclosure, hermetically sealed, housing Class 33 miniature relay with 8- or 14-pin high compression, glass insulated, solder terminal header. Silver alloy contacts, 5-ampere rating. Three 4-40 tapped mounting holes on $\frac{1}{2} \times 1$ centers. Weight, 3 ounces.

contacts	voltage	res.	nominal	Stock	NET
5 amps.	DC	ohms	power	Part No.	
DPDT WD-8	6VDC	17		W33HSX177	13.21
	12VDC	75		W33HSX178	13.21
	24VDC	280	2.0W	W33HSX179	13.26
	110VDC	6500		W33HSX180	13.87
4PDT WD-9	6VDC	17		W33HSX181	16.65
	12VDC	75		W33HSX182	16.65
	24VDC	280	2.0W	W33HSX183	16.70
	110VDC	6500		W33HSX184	17.36

Hermetically Sealed Miniature DC 5 amps. 11HS

$1\frac{1}{2} \times 1\frac{1}{4} \times 2\frac{1}{2}$ h*

40-102 enclosure, hermetically sealed, housing Class 11 miniature relay with 14-pin, high compression, glass insulated solder terminal header. Silver alloy contacts, 5 ampere rating. Three #6-32 NC-2 threaded mounting studs on $\frac{1}{16} \times 1\frac{1}{16}$ centers. Weight, 6 ounces.

contacts	volt. or	res.	nominal	Stock	NET
5 amps.	current	ohms	power	Part No.	
4PDT WD-9	6VDC	25		W11HSX321	15.92
	12VDC	100		W11HSX322	15.97
	24VDC	400	1.5W	W11HSX323	15.97
	110VDC	9000		W11HSX324	17.06
DC current actuated for plate circuit operation					
DPDT WN-R	5 MA	10000	250MW	W11HSX325	13.70

Hermetically Sealed Miniature DC 5 amps. 11HS

$1\frac{1}{2} \times 1\frac{1}{4}$
 $\times 2\frac{1}{2}$ h*

40-188 enclosure, hermetically sealed, housing Class 11 miniature relay with 20-pin high compression glass insulated solder terminal header. Silver alloy contacts, 5 ampere rating. Three #6-32 NC-2 threaded mounting studs on $\frac{1}{2} \times 1\frac{1}{32}$ centers. Weight, 6 ounces.

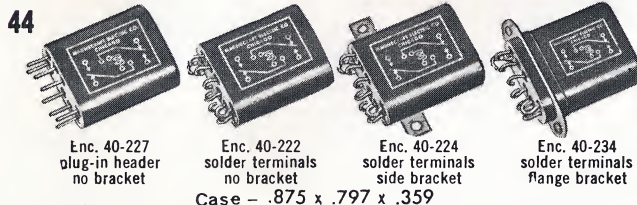
contacts	voltage	res.	nominal	Stock	NET
5 amps.	DC	ohms	power	Part No.	
6PDT WD-10	6VDC	13		W11HSX326	19.91
	12VDC	56		W11HSX327	19.91
	24VDC	280	2.5W	W11HSX328	19.96
	110VDC	5000		W11HSX329	20.18

Micro-Miniature Rotary Relays

MAGNECRAFT Class 44 Rotary Relays have been developed to provide increased reliability in the crystal can size. Here are a few of many areas in which improvement has been made:

1. Frame and header assembly of rugged bridge-type construction—assures greatly increased resistance to distortion from shock, vibration and temperature—to military specification requirements
2. Balanced armature—minimizes the effect of gravity, shock and vibration on operating reliability.
3. Hinge design—oversize, instrument type bearings at BOTH ends.
 - a. Minimizes friction for increased sensitivity and greater contact pressure.
 - b. Increases operating reliability and life.
4. The latest and finest developments in high temperature insulation.
5. Hermetically sealed in inert gas for maximum protection against severe ambient conditions.

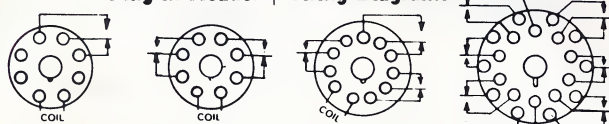
Contact combination: Double Pole, Double Throw
Contact rating: 2 amperes at 28 VDC or 115 VAC, non-inductive.
Operate Time: 5 milliseconds maximum with nominal voltage
Release Time: 5 milliseconds maximum.



DC voltage	res. ohms	nominal power	Stock Part No.	NET
6.5	34		W44HPX-34	17.60
11	92		W44HPX-35	17.60
26.5	552	1.2W	W44HPX-36	17.60
38.5	1278		W44HPX-37	18.00
76	5000		W44HPX-38	19.90
Enc. 40-224				
6.5	34		W44HSX 108	17.95
11	92		W44HSX 109	17.95
26.5	552	1.2W	W44HSX-110	17.95
38.5	1278		W44HSX-111	18.35
76	5000		W44HSX-112	20.25
Enc. 40-234				
6.5	34		W44HSX-113	17.95
11	92		W44HSX-114	17.95
26.5	552	1.2W	W44HSX-115	17.95
38.5	1278		W44HSX-116	18.35
76	5000		W44HSX-117	20.25

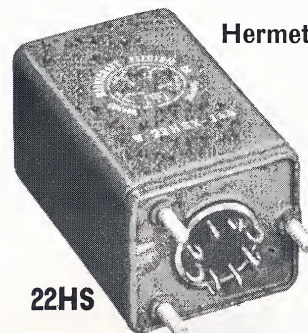
Standard wiring diagram for Class 44 Relays

Plug-in Header Wiring Diagrams



WD is abbreviation for Wiring Diagram h* is overall dimension above mounting base

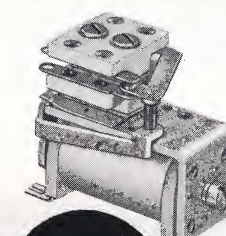
Hermetically Sealed—small— AC-DC—5 amps.



40-158 enclosure, hermetically sealed, housing Class 22 relay with 14-pin glass insulated solder terminal header. Silver alloy contacts, 5 ampere rating. Three #6-32 threaded mounting studs on $\frac{1}{16} \times 1\frac{1}{16}$ centers. Weight, 7 ounces.

contacts	voltage	res.	nominal	Stock	NET
5 amps.	DC	ohms	power	Part No.	
alternating current voltage actuated					
4PDT WD-9	115VAC	500	5VA	W22HSX32	17.30
direct current voltage actuated					
4PDT WD-9	6VDC	20	2.0W	W22HSX144	17.00
	12VDC	80	2.0W	W22HSX145	17.00
	24VDC	375	1.5W	W22HSX146	17.05
	110VDC	8000	1.5W	W22HSX147	18.03

Class 33F RF Switching, Subminiature.

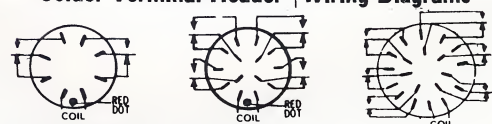


Class 33 telephone type relay designed especially for lowest capacitance between springs and minimum losses at high frequencies. Suitable for antenna change-over switching. Contact springs have ceramic insulation. Contacts are Palladium, 2 ampere rating. Tinned solder terminals. Four #4-40 tapped mounting holes on $\frac{3}{8} \times \frac{3}{8}$ centers. Weight, 1 ounce. $1\frac{1}{32}$ l, $1\frac{1}{16}$ w, $1\frac{1}{4}$ h.

Class 33F RF Switching Subminiature

contacts	voltage	res.	nominal	Stock	NET
2 amps.	DC	ohms	power	Part No.	
SPDT	6VDC	28		W33FX20	4.06
	12VDC	100	1.5W	W33FX21	4.11
	24VDC	500		W33FX22	4.16
	110VDC	6500		W33FX23	4.69

Solder Terminal Header Wiring Diagrams



NOTE—Voltage actuated relays pull in at 85% or nominal voltage.

Mercury-Wetted and Dry Reed

MAGNECRAFT RELAYS

131PC Miniature Mercury-Wetted Contact Relays

Mercury-Wetted Contact performance in very small encapsulated printed circuit relays. Same ultra-reliable assembly and encapsulation as the Dry Reed Relays described on page 6.

Operate Time: 1 ms average
Release Time: 1 ms average

Contacts: Mercury-Wetted, rated 28VA, 1 amp. max. or 100V. max. resistive

Contact Bounce: none

Life Expectancy: 100 million cycles at rated load

Operating Position: Upright, not more than 30° from vertical

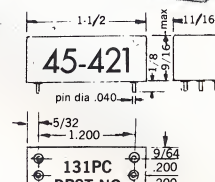
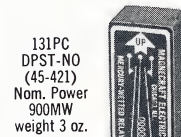
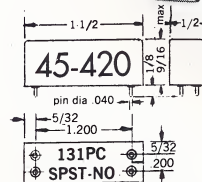
Ambient Temperature: -37°F to +200°F

131PC SPST-NO (45-420)

Coils—DC			Stock Part No.	Price 1 to 24
MA	Volts	Ohms		
—	6	65	131PCX-8	8.38
—	12	250	131PCX-9	8.44
—	24	1000	131PCX-10	8.55
8	—	5000	131PCX-11	9.01

131PC DPST-NO (45-421)

Coils—DC			Stock Part No.	Price 1 to 24
MA	Volts	Ohms		
—	6	40	131PCX-12	10.62
—	12	150	131PCX-13	10.66
—	24	650	131PCX-14	10.71
8	—	5000	131PCX-15	11.21



132MPC and 133MPC Mercury-Wetted Contact Relays in MPC Package

132 and 133MPC Specifications

Operate Time: 2 ms. average.

Release Time: 2 ms. average.

Operating Position: Upright—not more than 30° from vertical.

Nominal Power: 500 Milliwatts.

Life Expectancy: 1 Billion cycles.

Contacts: Mercury-wetted.

Contact Load Rating: 50 VA at 3.0 amps. max., or 400V max. non-inductive. Switches from 50VA to extremely minute current and voltage reliably.

Contact Resistance: 25 milliohms max.; less than 10% change in contact resistance through life.

Maintenance: No change in adjustment after the relay is made. May be stored indefinitely without deterioration.

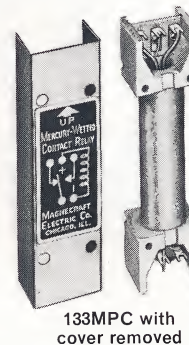
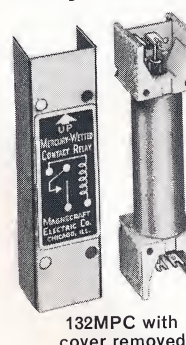
Ambient Temperature: -37.8°F to +200°F.

132MPC SPST-NO

Stock Part No.	COIL			Price 1 to 24
	MA	Volts	Ohms	
W132MPCX-1	140	—	30	5.83
W132MPCX-2	85	6VDC	70	
W132MPCX-3	48	12VDC	250	
W132MPCX-4	24	24VDC	1000	
W132MPCX-5	12	48VDC	4000	6.00
W132MPCX-6	9	—	7000	6.68

133MPC SPDT Form C

Stock Part No.	COIL			Price 1 to 24
	MA	Volts	Ohms	
W133MPCX-1	140	—	30	7.65
W133MPCX-2	85	6VDC	70	
W133MPCX-3	48	12VDC	250	
W133MPCX-4	24	24VDC	1000	
W133MPCX-5	12	48VDC	4000	7.82
W133MPCX-6	9	—	7000	8.50



MPC Modular Package (see Mercury-Wetted Relays above and Dry Reed Relays below)

Fig. 3. Snap-on steel cover—combines mechanical protection and magnetic shielding, also prevents interaction.

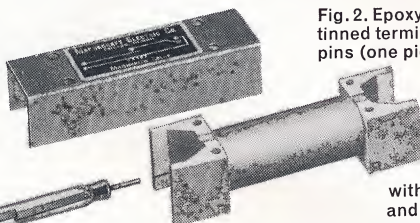


Fig. 2. Epoxy resin terminal board with tinned terminal supports and terminal pins (one piece) riveted into mortised position.

Fig. 1. Nylon bobbin integrally molded with terminal board support and mounting base.

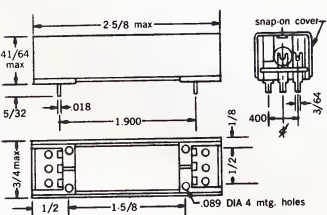
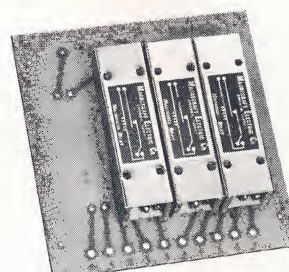
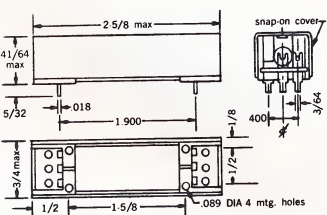
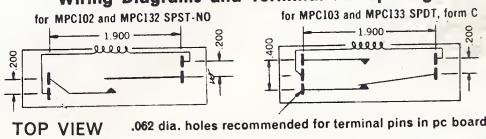


Fig. 4. The switch mechanism, hermetically sealed with an atmosphere of inert gas in a glass capsule—protected for life from dust, moisture, contamination and tampering.



MPC Packaged Relays provide quick plug-in assembly to circuit boards.

Wiring Diagrams and Terminal Pin Spacings



Class 102MPC and 103MPC Dry Reed Relays in MPC package

Class 102MPC SPST-NO

Contact Combination: SPST-NO.

Operate Time: 3 ms. average Release: 1/2 ms. average.

Nominal Power: 500 milliwatts.

Contacts: Gold; rated 15 VA at 1 amp., max. or 250 VAC max. non-inductive load.

Life Expectancy: 20 million cycles at maximum rating.

100 million cycles at 1/2 maximum rating.

200 million cycles at low load (1/10 amp. at 12V).

Stock Part No.	COIL			Price 1 to 24
	MA	Volts	Ohms	
W102MPCX-5	140	—	30	3.29
W102MPCX-6	85	6VDC	70	
W102MPCX-7	48	12VDC	250	
W102MPCX-8	24	24VDC	1000	
W102MPCX-9	12	48VDC	4000	3.46
W102MPCX-10	9	—	7000	4.14

Operates in any position.

Class 103MPC SPDT Form C (Single Side Stable)

Contact Combination: SPDT, Form C, single side stable*

Operate Time: 2 ms. average.

Release Time: 1/2 ms average.

Contact Bounce: 4 ms. max. on release (normally closed contact).

Nominal Power: 500 milliwatts.

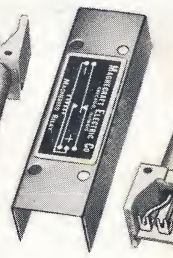
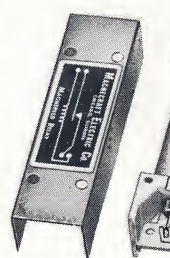
Contacts: Gold—rated 10 VA at 0.5 amp. max. or 250 VAC max.; non-inductive load.

Operates in any position.

Stock Part No.	COIL			Price 1 to 24
	MA	Volts	Ohms	
W103MPCX-1	140	—	30	5.83
W103MPCX-2	85	6	70	
W103MPCX-3	48	12	250	
W103MPCX-4	24	24	1000	
W103MPCX-5	12	48	4000	6.00
W103MPCX-6	9	—	7000	6.68

Life Expectancy: 25 million cycles at maximum rating.

50 million cycles at 1/2 maximum rating. 100 million cycles at low load (1/10 amp. at 12V).



MAGNECRAFT RELAYS

Encapsulated Dry Reed

These Dry Reed Relays by MAGNECRAFT have pre-adjusted GOLD contacts completely protected from dust, contamination and tampering by hermetic sealing in an atmosphere of inert gas, inside a glass capsule. The isolated switching contacts are actuated by a coil around the glass capsule.

MAGNECRAFT Relays bridge the gap between electromechanical relays and complex, costly solid state switching devices through stabilized contact resistance; high speed positive switching; sensitive operation; and adaptability to complex logic circuits plus ability to better withstand over-voltage transients and higher ambient temperatures.

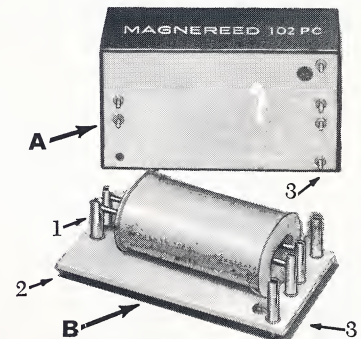
Class 101EP and 104EP Relays shown below are Epoxy Resin encapsulated in a molded case for protection from mechanical and environmental injury.

Encapsulated Mercury-Wetted and Dry Reed Relay Assemblies with Printed Circuit "plug-in" terminal pins.

Illustration "A" at right shows the "plug-in" terminal pins of an Encapsulated MAGNECRAFT assembly. Illustration "B" shows the relay on the Epoxy mounting board before encapsulation. The rugged terminal posts (1) extend through the mounting board (2) to form the terminal pins (3).

The leads from the capsule are soldered to the rigid terminal posts with the capsule and coil in position; stresses created when leads are bent that transmit to contacts inside the capsule are completely avoided.

Encapsulation eliminates breakage, protects coil, leads and terminals against mechanical injury and atmospheric change; provides fast and economical circuit board mounting.



Class 101 SPST-NO

Operate Time: 1 ms av.
Release Time: 1/2 ms av.
Contacts: Gold, rated 12VA at .25 amp. max. or 100VAC max. resistive
Life Expectancy: 5 million cycles at max. rating; 20 million cycles at 1/2 max. rating
Operates in any position
Capacitance between contacts: .3 mmf**

Coils—DC	Ohms	Stock Part No.	Price 1 to 24
6v	100	W101X-1	3.29
12v	250	W101X-2	3.29
24v	500	W101X-3	3.85
9MA	2500	W101X-4	4.25
8MA	—	—	—

open SPST-NO

Bobbin, 1/8" x 1/16" O.D.
Nom. Power 600MW

Ohms	Stock Part No.	Price 1 to 24
100	W101X-1	3.29
250	W101X-2	3.29
500	W101X-3	3.85
2500	W101X-4	4.25

101EP SPST-NO

Case, 1" long 7/16" O.D.
Nom. Power 600MW

Ohms	Stock Part No.	Price 1 to 24
65	W101EPX-5	3.62
225	W101EPX-6	3.62
1000	W101EPX-7	4.24
5000	W101EPX-8	4.68

101PC SPST-NO (45-321)

Nom. Power 600MW
1-1/2 x 1/2 x 9/16 h.
weight 2 oz.

COILS—DC			Stock Part No.	Price 1 to 2
MA	†volts	ohms		
—	6V	65	W101PCX-5	5.11
—	12V	250	W101PCX-6	5.16
—	24V	1000	W101PCX-7	5.26
8MA	—	5000	W101PCX-8	5.68

101PC DPST-NO (45-322)

Nom. Power 900MW
1-1/2 x 11/16 x 9/16 h.
weight 3 oz.

COILS—DC			Stock Part No.	Price 1 to 24
MA	† volts	ohms		
—	6V	40	W101PCX-9	7.15
—	12V	150	W101PCX-10	7.18
—	24V	650	W101PCX-11	7.24
8MA	—	5000	W101PCX-12	7.69

Class 104 SPDT

True Form C, no biasing magnet
Operate Time: 1 ms average
Release Time: 1 ms average
Contacts: Gold, rated 3VA at 0.25 amp. max. or 28V max. non-induct.
Contact Bounce: 0.5 ms max. N.O. contacts
2.0 ms max. N.C. contacts
Life expectancy: 10 million cycles at rated load
Operates in any position.

104EP SPDT

Case, 1" long 7/16" O.D.
Nom. Power 600MW

102 SPST-NO open type

CLASS 102 MAGNEED

104PC SPDT (45-332)

Nom. Power 600MW
1-1/2 x 1/2 x 9/16 h.
weight 2 oz.

—	6V	65	W104PCX-7	10.07
—	12V	225	W104PCX-8	10.12
—	24V	1000	W104PCX-9	10.22
8	—	5000	W104PCX-10	10.64

102PC SPST-NO (45-324)

104PC DPDT (45-333)

Nom. Power 900MW
1-1/2 x 11/16 x 9/16 h.
weight 3 oz.

—	6V	40	W104PCX-3	14.59
—	12V	150	W104PCX-4	14.62
—	24V	650	W104PCX-5	14.68
8	—	5000	W104PCX-6	15.13

102PC DPST-NO (45-326)

Class 102 SPST-NO

Operate Time: 3 ms average
Release Time: 1/2 ms average
Contacts: Gold, rated 15VA at 1 amp. max. or 250VAC max. non-inductive
Life Expectancy: 20 million cycles at max. rating
100 million cycles at 1/2 max. rating.
Operates in any position
Capacitance between contacts: .9 mmf**

102 SPST-NO open type

Nom. Power 300MW
Overall length, 3-1/4; bobbin 2-1/16 O.D. 1/2 weight 2 oz.

14.5MA	12V	500	W102X-3	2.57
7.5MA	24V	2000	W102X-4	2.70
4.6MA		5000	W102X-5	3.25

103 SPDT open type

No. 

102PC SPST-NO (45-324)

Nom. Power 400MW
2-1/4 x 21/32 x 5/8 h.
weight 3 oz.

—	6V	100	W102PCX-1	4.77
—	12V	400	W102PCX-2	4.83
—	24V	1500	W102PCX-3	4.87
6.5MA	—	5000	W102PCX-4	5.32

103PC SPDT (45-325)

102PC DPST-NO (45-326)

Nom. Power 700MW
2-1/4 x 1-1/4 x 3/4 h.
weight 4 oz.

—	6V	50	W102PCX-5	6.22
—	12V	200	W102PCX-6	6.28
—	24V	800	W102PCX-7	6.33
9MA	—	5000	W102PCX-8	6.78

103PC DPDT (45-327)

Class 103 SPDT

Contact Combination: SPDT form C, break before make (single side stable)
Operate Time: 2 ms average
Release Time: 1/2 ms average
Contacts: Gold, rated 10VA at 1 amp. or 250VAC max., non-inductive.
Contact Bounce: 4 ms average on release (normally closed contact)
Life Expectancy: 25 million cycles at max. rating.
50 million cycles at 1/2 max. rating.
100 million cycles at low load.
Capacitance betw. contacts: .8 mmf**

103 SPDT open type

Nom. Power 300MW
Overall length, 3-1/2; bobbin 2-1/8 O.D. 1/2 weight 2 oz.

COILS—DC	Stock Part No.	Price 1 to 24
MA	†volts	ohms
32MA	—	100
23MA	6V	200
14.5MA	12V	500
7.5MA	24V	2000
4.6MA	—	5000

103PC SPDT (45-325)

Nom. Power 400MW
2-1/4 x 21/32 x 5/8 h.
weight 3 oz.

—	6V	100	W103PCX-1	7.22
—	12V	400	W103PCX-2	7.27
—	24V	1500	W103PCX-3	7.32
6.5MA	—	5000	W103PCX-4	7.76

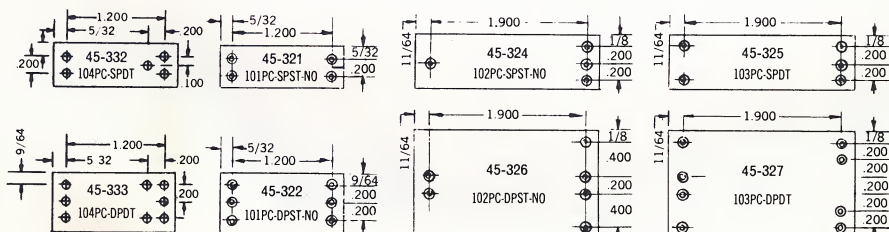
103PC DPDT (45-327)

Nom. Power 700MW
2-1/4 x 1-1/4 x 3/4 h.
weight 4 oz.

—	6V	50	W103PCX-5	10.77
—	12V	200	W103PCX-6	10.79
—	24V	800	W103PCX-7	10.84
9MA	—	5000	W103PCX-8	11.31

Terminal Pin Spacings for the 8 Printed Circuit Encapsulated Dry Reed Assemblies shown above. Numbers in diagrams correspond to numbers shown in headings.

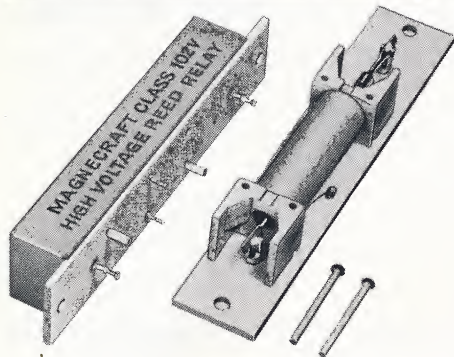
All Terminal Pins are .040 diameter and 1/8 inch long.



Dry Reed and Time Delay

MAGNECRAFT RELAYS

102V High Voltage Reed Relays



Switches up to 5000 VDC with reed relay reliability. Contact leads are soldered to rigid terminal posts widely spaced on an epoxy resin terminal board. Internally insulated metal cover protects reed and coil assembly and provides magnetic shielding.

Contacts: SPST-NO of special material, rated 50VA, 5000 VDC max. or 3 amps. max. resistive

Life Expectancy: 20 million cycles at rated load.

Operate Time: 3 ms average

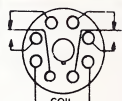
Release Time: 0.5 ms average.

Operates in any position

Overall, approximately $4\frac{1}{2} \times 1\frac{1}{16} \times \frac{3}{8}$ ".

Coils—DC			Stock Part No.	Price 1 to 24
MA	Volts	Ohms		
140	—	30	W 102VX-9	13.69
—	6	70	W 102VX-10	13.69
—	12	250	W 102VX-11	13.73
—	24	1000	W 102VX-12	13.78
—	48	4000	W 102VX-13	14.15
9	—	7000	W 102VX-14	14.58

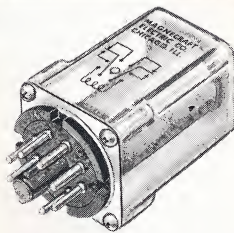
103CP Dry Reed Relay Plug-in Assemblies



WD-2 DPDT, 8-pin



WD-3 3PDT, 11-pin



Dimensions: $1\text{-}3/8 \times 1\text{-}3/8 \times 2\text{-}1/8$ h. Weight 5 oz.

Each assembly includes two or three Class 103SPDT Dry Reed Relays with plug-in mounting in plastic dust cover.

Contact Combination: SPDT form C, break before make (single side stable)

Operate Time: 2 ms average

Release Time: $\frac{1}{2}$ ms average

Contacts: Gold, rated 10VA at 1 amp. or 250VAC max., non-inductive.

Contact Bounce: 4 ms average on release (normally closed contact)

Life Expectancy:

25 million cycles at max. rating.

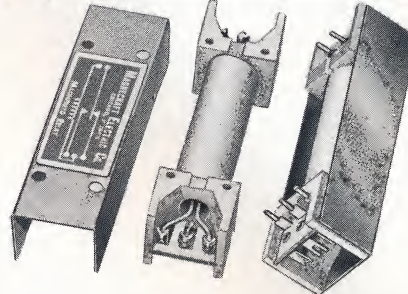
50 million cycles at $\frac{1}{2}$ max. rating.

100 million cycles at low load.

†Voltage operated relays pull in at 85% of nominal voltage

contacts	direct current		res. ohms	Stock Part No.	Price 1 to 24
	current	†volts			
DPDT	—	6V	75	W103CPX-7	12.92
	—	12V	300	W103CPX-8	12.95
	—	24V	1000	W103CPX-9	13.01
WD-2	8MA	—	5000	W103CPX-10	13.57
	—	—	—	—	—
3PDT	—	6V	40	W103CPX-11	16.77
	—	12V	150	W103CPX-12	16.83
	—	24V	650	W103CPX-13	16.95
WD-3	10MA	—	5000	W103CPX-14	17.50

103LMPC Magnetic Latching (bi-stable) Dry Reed Relays



Biased permanent magnet holds either contact position without coil power. Ideal for memory applications. MPC construction with printed circuit terminals described on page 5. Steel snap-on cover provides mechanical protection and magnetic shielding.

Contacts, gold, SPDT, Form C, break-before make, Bi-Stable, rated 10VA, 200V max. or 0.2 amp. max. non-inductive load.

Operate Time: 2 ms average

Contact Bounce: 2 ms maximum

Operates in any position

Life Expectancy: 25 million cycles at rated load.

Dimensions: See diagram in center, page 5.

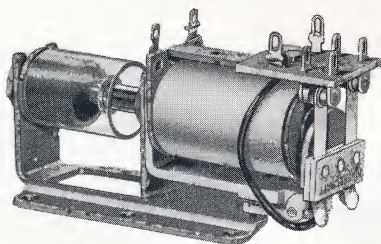
Coils—DC			Stock Part No.	Price 1 to 24
MA	Volts	Ohms		
Single Wound Coils				
40	—	70	W 103LMPCX-3	7.07
—	6	250	W 103LMPCX-4	7.07
—	12	1000	W 103LMPCX-5	7.07
—	24	4000	W 103LMPCX-6	7.26
4	—	7000	W 103LMPCX-7	8.01
Double Wound Coils				
80	—	30/30	W 103LMPCX-8	8.22
—	6	120/120	W 103LMPCX-9	8.33
—	12	460/460	W 103LMPCX-10	8.33
—	24	1800/1800	W 103LMPCX-11	9.00
8	—	3000/3000	W 103LMPCX-12	0.04

Class 110 Air Dashpot Time Delay Relays

Operate Time Delay adjustable 0.2 to 45 sec.

High Reliability through long life is assured by a unique combination of proven relay contacts and switching mechanism; precision-built Air Dashpot Timer of non-aging, low friction materials and a Solenoid Assembly that completes the magnetic circuit instantaneously for positive

Open type with Solder Terminals



Has solder terminals. Six mounting holes: two holes 6-32, thread, located diagonally, spaced $1\text{-}3/16 \times 2\text{-}1/8$; two holes .156 dia., located diagonally, spaced $1\text{-}3/16 \times 2\text{-}1/8$; two holes .156 dia., spaced $1\text{-}3/16$. Dimensions: $3\text{-}13/16$ long, $1\text{-}15/16$ high, $1\text{-}7/16$ wide. Weight; 6 ounces.

Stock Part No.	Voltage	Res. Ohms	Time Delay	Contacts Comb.	Price 1-9
W110X-9	24VDC	100	0.2 to	DPDT 10 amps.	17.75
W110X-10	110VDC	2500	30		18.34
W110AX-9	115VAC*	—	Sec.		20.91

*AC models rectified for DC reliability from AC service.

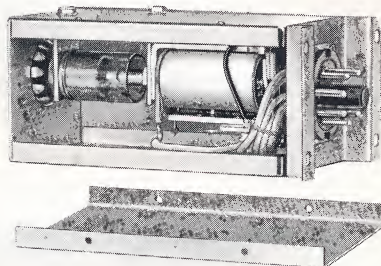
NOTE—Voltage actuated relays pull in at 85% of nominal voltage.

switching action and thereby protects contacts from chattering and fritting.

Timing Adjustment: 0.2 to 45 seconds.

Instantaneous Release: Air Dashpot reaches "start" position within 0.2 second.

with 40-347 Dust Cover, Plug-in



Phenolic octal plug base with hold down bracket and heavy duty metal enclosure with snap-on cover which permits quick access to relay. Snap-on cap provides access to timing screw. Permanently identified with wiring diagram, contact combination, contact rating, part number and coil operating voltage. Hold down bracket has four mounting holes, .177 diameter on $1\text{-}1/2 \times 2\text{-}5/8$ centers. Dimensions: $3\text{-}1/32 \times 2\text{-}5/32 \times 4\text{-}5/8$. Weight, 15 ounces.

Stock Part No.	Voltage	Res. Ohms	Time Delay	Contacts Comb.	Price 1-9
W110CPX-10	24VDC	100	0.2 to	DPDT 10 amps.	26.78
W110CPX-11	110VDC	2500	30		27.44
W110ACPX-9	115VAC*	—	Sec.		29.79

Operates in any position. Timing should be set in installed position.

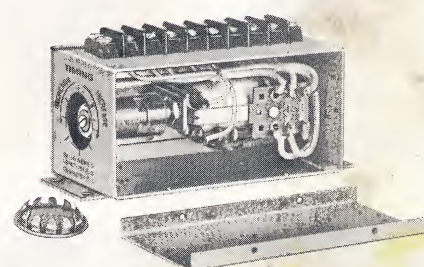
Timing Repeat Accuracy: $\pm 10\%$

Temperature Range: -65 to $+165^\circ\text{F}$.

Power Consumption: DC, 4 watts; AC 7VA.

AC Models rectified for DC operating reliability.

40-348 Cover—Screw Terminals



Heavy duty metal enclosure with snap-on cover which permits quick access to relay. Snap-on cap provides access to timing screw. Has molded phenolic barrier screw type terminal block. Permanently identified with wiring diagram, contact combination, contact rating, part number and coil operating voltage. Four mounting holes, .177 diameter on $4\text{-}5/8 \times 1\text{-}1/8$ centers. Dimensions: $5 \times 2\text{-}3/8 \times 2\text{-}17/32$. Weight, 15 ounces.

Stock Part No.	Voltage	Res. Ohms	Time Delay	Contacts Comb.	Price 1-9
W110CSX-1	24VDC	100	0.2 to	DPDT 10 amps.	28.56
W110CSX-2	110VDC	2500	30		29.22
W110ACSX-1	115VAC*	—	Sec.		30.07

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